

Malayan Fern Notes

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A preliminary note

BOTRYCHIUM DAUCIFOLIUM Wall. ex Rac., Flor. Btz., I. 4. (1898). The genus *Botrychium* has not previously been recorded for Malaya. Holttum however, when discussing the Ophioglossaceae in "Ferns of Malaya" (1954), page 38, notes: "*Botrychium* occurs in both Borneo and north of Malaya, so that it may occur in mountain forests in Northern Malaya." Thus it was not surprising when I found it in the Cameron Highlands area of Pahang in April 1958.

The plants agree with the description of *B. daucifolium* given by van Alderwerelt van Rosenburgh in "Malayan Ferns" (1908) page 778 (the *forma typica* of his supplement (1916), page 455). Most are a little smaller than his measurements, and the segments of the sterile frond are inclined to be coarsely toothed. I have not seen Wallich's description, so do not know whether the presence of copious pale hairs on very new growth and the almost glabrous state of the mature fern, is typical. This is not mentioned in any description I have seen, but Beddome's illustration in "Ferns of British India & Ceylon" (1892), page 470, shows a very hairy stipe and rachis of an adult plant. This is not described in the text. None of my mature or nearly mature specimens approaches this state.

The path to Gunong Perdah, for about one mile past the Gunong Jasah turnoff, follows a more or less flat contour, along the sloping sides of the hills, which are clad in tall rain forest. This is at about 5,000 feet in altitude. Here nine plants of *Botrychium* were found in a small area of about two square metres, where there was a slight opening in the tall dark forest. Apparently a tree had fallen sometime previously widening the opening already made by the path. In the immediate vicinity there were no plants growing between the tall saplings which were nearly two metres high, and the scattered plants on the forest floor. The tallest of the latter were about 45 cm., and were mostly a species of *Didymocarpus* and young *Cyathea* species.

The earth was rich in humus being black and sticky, and the situation was some distance above a stream. The *Botrychium* plants were a paler green than the surrounding vegetation and showed up

clearly. The largest plant measured was nearly 36 cm. tall and had the remains of a very old fertile spike which projected beyond the sterile portion of the lamina. The sterile leaves were also past maturity, but there was one very new and uncurled frond, most parts of which were covered with transparent spreading hairs. All the older fronds examined were almost, or quite, glabrous. Amongst the other plants there were only two fertile spikes, both being very new, but many of the other fronds still showed where a fertile spike had been. Two of these can be seen in the accompanying photograph.

Although the adjacent ground, both above and below the path was searched, no more plants were found here, but further on towards the Jasah turnoff, eleven more were found. They occurred sporadically on the pathside for about half a mile, in similar places to the first lot except that there was seldom as much light on the forest floor. Most of these had new fertile spikes which were often nearly mature.

Further field observations are necessary to determine whether *Botrychium* dies off in the same way as some of the other Ophioglossaceae in Malaya. The presence of bases of old fertile spikes rather suggests that they do not do so, yet a plant may produce more than one fertile spike in one season before a die-back. I had hoped to return in July, but new emergency regulations have closed this area, so no further notes have been made since the first collection.

Botrychium may not be uncommon in these forests where the floor is flat and where damp (not wet) conditions prevail. They appear to require a certain amount of light so perhaps the normal tall jungle provides only a temporary habitat after an opening has been made, and before other plants of more vigorous growth cover the ground. The path here no doubt, has provided this sort of habitat, for since the emergency it has remained practically undisturbed. Saplings on the path edges have become tall and so have kept that part of the floor fairly clear. The saplings are now however, at a height where the undergrowth can and probably will start covering the ground again. So possibly *Botrychium* may be on the decline here. It will be interesting to see the position in a year's time, and probably much will depend on whether the paths have been cleared. Perhaps the original habitat is in the light shade provided by the smaller trees in the *padang* areas of higher altitudes.

A living plant is at Kew and herbarium specimens No. 3930 were sent to the herbaria of Kew and the Singapore Botanic Gardens.